

Stress-Related Job Analysis for Medical Students on Surgical Wards in Germany

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OBJECTIVE: Working conditions in hospitals generate stress within all professional groups. The aim of this study was to find out how German medical students during their senior student clerkship in surgery perceive their own stress and the stress of surgical residents. This was measured using “Instrument zur stressbezogenen Arbeitsanalyse bei KlinikÄrztInnen (ISAK-K),” a validated questionnaire of the German statutory occupational accident insurance system (BGW).

DESIGN AND SETTING: This bi-institutional paper-and-pencil survey was performed on 52 medical students in their sixth year, who had been working in a surgical department for 4 months. Data were compared with those of the BGW on the stress perceived by physicians working in German surgical departments.

RESULTS: The stress levels measured with the ISAK-K were similar in students and in physicians working in surgery. Students believe that surgical residents experience a higher time pressure ($p < 0.03$). Those students planning a surgical career feel to be more exposed to time pressure ($p < 0.01$), but to be more free to decide how to work ($p < 0.03$) than their “nonsurgical” colleagues do. In addition, in contrast to the “nonsurgical” students, students interested in surgery believe that surgical residents have more possibilities to learn at work ($p < 0.05$) and that they can rely on their supervisors ($p < 0.03$). All students believe that surgical residents commonly need to take decisions without having enough information ($p < 0.05$). When compared with the BGW data students overestimate the stress of surgical residents.

CONCLUSIONS: Students overestimate time pressure and uncertainty of surgical residents. A possible way to increase their interest in surgery is offering a better insight in surgeons’ work and strategies to deal with these stressors.

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COMPETENCIES: Patient care, Interpersonal and Communication Skills, Professionalism

BACKGROUND

Hospital work is not only stressful for physicians but also for other professional groups. The German “Berufsgenossenschaft für Gesundheitsdienst und Wohlfahrtspflege,” which is responsible for the prevention and care of occupational accidents and work-related health hazards, recently introduced a validated questionnaire (the “ISAK-K”) to record the job-related stress of medical staff in hospitals and a software for the evaluation of the results. We decided to measure, not only the stress of physicians but also of nurses, secretaries, and medical students working together with physicians on the wards. The present article focuses on medical students.

Medical students in Germany undergo a compulsory unpaid 1-year-internship before their graduation and registration. It is called “Praktisches Jahr,” which means “practical year” and it is similar to the US “subinternship.” This “senior student clerkship” consists of 4 months of internal medicine, 4 months of surgery, and 4 months in a department of individual choice. Therefore, it is compulsory for all medical students to undergo a surgical 4-month-rotation, even if they are not interested in surgery.

In surgical departments students sometimes have to work overtime, on weekends, and during holidays.¹ Their responsibilities are not completely standardized and strongly dependent on the physicians and nurses they work with. Their involvement in patients’ care is not always easily accepted by the patients and their families. This can be a source of emotional and social stress

for students. All these factors determine a very heterogeneous student assessment of the “practical year.” Some students would even apply as physicians in the departments where they served their rotation, based on their positive experience. Some would change their residency choice.²

The education of students and interns in surgery has always been problematic because of time pressure and stress. The Germany wide decreasing students’ interest for surgery³ might be not only because of negative experiences collected during their practical year but also to the high level of stress, which students believe surgical residents are confronted with daily.

For this reason, the stress-related job analysis based on the ISAK-K was performed on medical students who had been working in a surgical department for 4 months in 1 of 2 university hospitals in Western (Munich) and Eastern Germany (Magdeburg). Students were asked to fill in the same questionnaire twice: 1 evaluating their own and 1 assessing the stress they perceived the residents were experiencing in their departments. We decided to ask them to assess the stress of residents as students spend most of their time with them, therefore, it might be easier for them to judge their stress rather than of attendings and consultants.

METHODS AND INSTRUMENTS

ISAK-K is a validated instrument to record job-related stressors and resources for hospital staff. The short version of the questionnaire is available on the homepage of the BGW and includes 30 items in 14 scales.^{4,5} Every scale includes 2 to 3 items each.

Seven of the scales focus on stressors such as

- (1) time pressure,
- (2) uncertainty,
- (3) frustration about how work needs to be done,
- (4) problems in workflow because of supervisors,
- (5) problems in workflow because of colleagues,
- (6) social stressors with patients and families, and
- (7) emotional dissonance.

The seven scales deal with resources, as opposed to stressors (reducing stress)

- (1) autonomy,
- (2) professional development,
- (3) skill development at work,
- (4) possibilities in further education,
- (5) participation,
- (6) support from supervisors,
- (7) support from colleagues, and
- (8) justice (fairness in the distribution of tasks and support).

All scales include 5 responses and are specified both verbally and numerically.

The study was performed as a bi-institutional paper-and-pencil survey (didactic study design) in 2 surgical departments of 2 university hospitals, in Munich and Magdeburg, respectively. The questionnaire was anonymous and facultative. It was distributed to the medical students at the end of their rotation in surgery. The study was performed between June 2014 and March 2015. Most of the students were in their final rotation of their practical year or had just completed their practical year, but were not working yet. To collect a greater number of results, both students rotating in the clinics and students who had been rotating in the last 6 months before the study were invited to participate. Their average age was 26.5 ± 3.4 (21-39). Students had been working either in general surgery, trauma surgery, or in the surgical emergency room.

Paper questionnaires were collected and all answers were captured in an Excel document and in the BGW software. The evaluation was anonymous, too. The questionnaire included two 15-item-sections. Incomplete sections could not be evaluated by the BGW software, so they were excluded. In every graphic a legend was included; reporting how many questionnaires per group could be evaluated.

Statistical Analyses

The statistical evaluation used the programs IBM SPSS statistics 22, MS Office Excel, and the BGW program downloaded from the BGW internet site. Mean values for the questionnaire responses were calculated and responses were compared using a paired *t*-test. $p < 0.05$ was considered statistically significant.

RESULTS

Study Participants

Totally, 52 questionnaires were distributed and returned (rate 100%). Not all students answered all questions asked, especially when they were asked about how they perceived the stress of surgical residents. Incomplete sections (the questionnaire includes 2) had to be excluded, as the BGW program does not support this option. In every graphic a legend was included; reporting how many questionnaires per group could be evaluated.

Students were asked to mention

- their age and
- whether they plan to choose a surgical residency (including all surgical disciplines such as urology, gynecology, ear-nose-throat surgery, etc.)

In total, 52 students filled in the first part of the questionnaire completely (answers concerning their own

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